

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/686,741 Confirmation No. : 8292
First Named Inventor : Joseph Wayne NORTON
Filed : October 17, 2003
TC/A.U. : 2445
Examiner : Jeffery Swearingen
Docket No. : 101610.55984US
Customer No. : 23911
Title : Distributed, Fault-Tolerant Message Store

APPEAL BRIEF

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This paper is submitted in response to a Notice of Non-Compliant Appeal Brief dated December 30, 2008. As this document is being filed within the one month/thirty day period set in the Notification referred to, no additional fee should be due.

Pursuant to the telephone conference between Ms. Coates and the undersigned on January 6, 2009, the grounds for holding the brief non-compliant is that the Summary of Claimed Subject Matters section addresses claims in groups, and does not address each claim separately. It is respectfully submitted that 37 C.F.R. § 41.37 (c)(1)(v), reproduced below, does not require claims to be addressed separately.

Summary of claimed subject matter. A concise explanation of the subject matter defined in each of the independent claims involved in the appeal, which shall refer to the specification by page and line number, and to the drawing, if any, by reference characters. For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of paragraph (c)(1)(vii) of this section, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph,

must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters.

Nevertheless, in order to advance this application through the appeals process a revised Summary of Claimed Subject Matter section is submitted herewith. Pursuant to M.P.E.P. § 1205.03(B), Appellant is only submitting a replacement section, and not resubmitting the entire Appeal Brief.

V. **SUMMARY OF CLAIMED SUBJECT MATTER¹**

Appellants disclose and claim techniques that provide improved scalability and fault-tolerance for storage and retrieval of messages destined for mobile devices.² Conventional message storage and retrieval techniques that rely upon a single server are unable to scale to increase capacity and performance requirements, and also require frequent backup operations to maintain data in the event of a server failure.³ Conventional techniques that use multiple, distributed servers require human intervention to reconfigure the network in the event of a server failure, and accordingly are unable to reliably handle server failures.⁴ Conventional techniques also encounter problems when moving mailboxes for load-balancing reasons. This typically requires copying the

¹ Citations to the specification and drawings are merely for the purposes of complying with Appeal Brief rules, and do not represent every instance of support for the claim elements. Accordingly, these citations should not be interpreted as limiting the claim scope.

² Paragraph 0002.

³ Paragraph 0004.

⁴ *Id.*

mailboxes to a new location and deleting the old mailboxes, and access to the mailboxes cannot be achieved until the move is complete.⁵

Exemplary embodiments of the present invention overcome the above-identified and other deficiencies of conventional techniques by using addressing functions, which correspond to a topology of the network, for storage and retrieval of information. Accordingly, as network nodes are added or removed, new addressing functions, corresponding to the updated network topology, can be employed. Specifically, the identification of the node for storage or retrieval of a message is determined using the addressing functions, which reflect the topology of the network. By reflecting the current topology of the network, the use of the addressing functions overcomes the above-identified deficiencies of conventional systems.

Turning now to the claims, claim 1 recites a method of managing a network. The method involves calculating a plurality of destination nodes based on a subscriber identifier and a plurality of addressing functions, each addressing function corresponding to a topology of the network at a particular moment in time (step 14).⁶ The method also involves querying the calculated plurality of destination nodes for a message (step 18).⁷

⁵ Paragraph 0026.

⁶ Figure 2 and paragraph 0014.

⁷ *Id.*

Claim 4 recites that the originator of the message retrieval request is a wireless handset 44, the message being at least one of a short messaging service message and a mail digest.⁸

Claim 5 recites that the originator of the message retrieval request is a wireless handset, the message being a long messaging service message.⁹

Claim 7 depends from claim 2, and further recites receiving the message at an initial storage node, the message including the subscriber identifier (step 62); calculating an actual destination node based on the subscriber identifier and a current addressing function corresponding to a current topology of the network (step 64); and sending the message to the actual destination node for storage, the calculated plurality of destination nodes including the actual destination node and the plurality of addressing functions including the current addressing function (step 66).¹⁰

Claim 8 depends from claim 7, and further recites storing the message to an internal queue of the initial storage node; and removing the message from the internal queue if a confirmation of receipt is received from the actual destination node.¹¹

⁸ Figures 3-5 and paragraph 0036.

⁹ Figures 3-5 and paragraph 0038.

¹⁰ Figure 1 and paragraph 0013.

¹¹ Paragraph 0013.

Claim 10 recites expiring one or more of the plurality of addressing functions based on a message validity period.¹²

Claim 11 recites expiring one or more of the plurality of addressing functions for an expired destination node based on a local expiration signal from the expired destination node.¹³

Claim 12 recites applying a time stamp to each of the plurality of addressing functions; and delivering each of the plurality of addressing functions to the plurality of destination nodes before activation.¹⁴

Claim 13 depends from claim 1 and further recites that the addressing functions are hash functions.¹⁵

Claim 14 recites a method of managing a network. The method involves receiving a message at an initial storage node, the message including a subscriber identifier (step 62); calculating an actual destination node based on the subscriber identifier and a first addressing function corresponding to a current topology of the network (step 64); sending the message to the actual destination node for storage (step 66); storing the message to an internal queue of the initial storage node; removing the message from the internal queue if a confirmation of receipt is received from the actual destination node; sending a message waiting indicator message toward a device associated with the

¹² Paragraph 0019.

¹³ Paragraph 0021.

¹⁴ Paragraph 0022.

¹⁵ Paragraph 0017.

subscriber identifier; receiving a message retrieval request at an initial retrieval node of the network, the message retrieval request including the subscriber identifier (step 12); calculating a plurality of destination nodes based on the subscriber identifier and a plurality of addressing functions, each addressing function corresponding to a topology of the network at a particular moment in time, the plurality of destination nodes including the actual destination node and the plurality of addressing functions including the first addressing function (step 14); querying the calculated plurality of destination nodes for the message; receiving the message from the actual destination node (step 18); and forwarding the message toward an originator of the message retrieval request, wherein the addressing functions are hash functions.¹⁶

Claim 15 recites that the originator of the message retrieval request is a wireless handset 44, the message being at least one of a short messaging service message and a mail digest.¹⁷

Claim 16 recites that the originator of the message retrieval request is a wireless handset, the message being a long messaging service message.¹⁸

Claim 18 recites expiring one or more of the plurality of addressing functions based on a message validity period.¹⁹

¹⁶ Figures 1 and 2, and paragraphs 0013-0015, 0017 and 0034.

¹⁷ Figures 3-5 and paragraph 0036.

¹⁸ Figures 3-5 and paragraph 0038.

¹⁹ Paragraph 0019.

Claim 19 recites expiring one or more of the plurality of addressing functions for an expired destination node based on a local expiration signal from the expired destination node.²⁰

Claim 20 recites applying a time stamp to each of the plurality of addressing functions; and delivering each of the plurality of addressing functions to the plurality of destination nodes before activation.²¹

Claim 21 recites a computer readable medium to store a set of instructions capable of being executed by a processor. The set of instructions involve calculating a plurality of destination nodes based on a subscriber identifier and a plurality of addressing functions, each addressing function corresponding to a topology of the network at a particular moment in time (step 14).²² The set of instructions also involve querying the calculated plurality of destination nodes for a message (step 18).²³

Claim 24 recites that the originator of the message retrieval request is a wireless handset 44, the message being at least one of a short messaging service message and a mail digest.²⁴

Claim 25 recites that the originator of the message retrieval request is a wireless handset, the message being a long messaging service message.²⁵

²⁰ Paragraph 0021.

²¹ Paragraph 0022.

²² Figure 2 and paragraph 0014.

²³ *Id.*

²⁴ Figures 3-5 and paragraph 0036.

²⁵ Figures 3-5 and paragraph 0038.

Claim 27 depends from claim 22, and further recites receiving the message at an initial storage node, the message including the subscriber identifier (step 62); calculating an actual destination node based on the subscriber identifier and a current addressing function corresponding to a current topology of the network (step 64); and sending the message to the actual destination node for storage, the calculated plurality of destination nodes including the actual destination node and the plurality of addressing functions including the current addressing function (step 66).²⁶

Claim 29 depends from claim 27, and further recites storing the message to an internal queue of the initial storage node; and removing the message from the internal queue if a confirmation of receipt is received from the actual destination node.²⁷

Claim 30 recites expiring one or more of the plurality of addressing functions based on a message validity period.²⁸

Claim 31 recites expiring one or more of the plurality of addressing functions for an expired destination node based on a local expiration signal from the expired destination node.²⁹

²⁶ Figure 1 and paragraph 0013.

²⁷ Paragraph 0013.

²⁸ Paragraph 0019.

²⁹ Paragraph 0021.

Claim 32 recites applying a time stamp to each of the plurality of addressing functions; and delivering each of the plurality of addressing functions to the plurality of destination nodes before activation.³⁰

Claim 33 depends from claim 14 and further recites that the addressing functions are hash functions.³¹

Claim 34 recites a method of managing a network. The method involves receiving, by a first node that stores messages, a message retrieval request (step 12); calculating, by the first node using a subscriber identifier and a first addressing function, a second node that stores messages (step 14); calculating, by the first node using the subscriber identifier and a second addressing function, a third node that stores messages (step 14); and forwarding, by the first node, the message retrieval request to the second and third nodes.³²

³⁰ Paragraph 0022.

³¹ Paragraph 0017.

³² Figure 2 and paragraphs 0014-0017.

VIII. CONCLUSION

For at least those reasons set forth above, the rejection of claims 1-36 for anticipation by Boyle is improper and should be reversed.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05-1323, Docket No.: 101610.55984US.

Respectfully submitted,

January 12, 2009



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